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**From:** Lejeune, Jeffrey (ESF) [Jeffrey.Lejeune@fao.org]  
**Sent:** 4/11/2022 4:33:48 PM  
**To:** Hammerberg, Justin [JHammerberg@nas.edu]; Liao, Julie [JLiao@nas.edu]; Ashby, Liz [EAshby@nas.edu]; Biffl, Claire [CBiffl@nas.edu]; Chiller, Tom (CDC/DDID/NCEZID/DFWED) [tnc3@cdc.gov]; julius.fajardo@usda.gov; mtbrewer@uga.edu; 'mervalin.morant@hq.dhs.gov' [mervalin.morant@hq.dhs.gov]; paige.waterman@usuhs.edu; p.taylor@cabi.org [P.Taylor@cabi.org]; ramanan@onehealthtrust.org; Sally Miller [miller.769@osu.edu]; Jennings, Susan [Jennings.Susan@epa.gov]  
**Subject:** fungicide use in Agriculture  
**Attachments:** azole use in agriculture.pdf; foa stat 2022 azoles.xlsx; usda pesticide residues graphs.xlsx

Dear All,

I attach three documents of possible interest.

1. A fairly recent review paper of azole use in agriculture, including in forestry and wood products.
2. FAO State Data on Azole use for 2017, 2018 and 2019 (some data extracted from FAO Stat is cited in the above paper, Table 3), but it is important to note that FAO stats are completely VOLUNTARY, and not all countries submit data every year (e.g. no data from USA). Note highest reported use in High income countries.
3. Data extracted from the USDA AMS pesticide database program on residue detection. I use this as evidence of use on the particular crops (no which products were imported v domestic. I did not did not determine which case the residues were above acceptable levels. Please note in the graphs the x axis is of different scales.

I also made several enquires about fungicide use, particularly azoles, in aquaculture. This doesn't seem to be a very common practice. The presence of azoles and azole resistant organism isolate from Asian aquaculture sites seems to most like a symptom of widespread azole use in other sectors of agriculture.

Cheers,  
Jeff

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**From:** Hammerberg, Justin <JHammerberg@nas.edu>  
**Sent:** 05 April 2022 17:05  
**To:** Liao, Julie <JLiao@nas.edu>; Ashby, Liz <EAshby@nas.edu>; Biffl, Claire <CBiffl@nas.edu>; Chiller, Tom (CDC/DDID/NCEZID/DFWED) <tnc3@cdc.gov>; Lejeune, Jeffrey (ESF) <Jeffrey.Lejeune@fao.org>; julius.fajardo@usda.gov; mtbrewer@uga.edu; 'mervalin.morant@hq.dhs.gov' <mervalin.morant@hq.dhs.gov>; paige.waterman@usuhs.edu; p.taylor@cabi.org; ramanan@onehealthtrust.org; Sally Miller <miller.769@osu.edu>; Jennings.Susan@epa.gov  
**Subject:** Interest with travelling to DC June 27 for Workshop

Hi all,

Please review and fill [this survey](#) by COB this Friday, 4/8 to indicate your interest in travelling to DC for the June 27 date of the crop agriculture + AMR fungi workshop. Thank you,

**Justin Hammerberg**  
Senior Program Assistant, Forum on Microbial Threats  
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